ATTITUDES TOWARDS AIR POLLUTION AND STRICTER VEHICLE EMISSION STANDARDS:

RESULTS OF A NATIONAL PUBLIC OPINION SURVEY

BY

Optima Applied Social Research Inc.

FOR

Environmental Protection Service
Environment Canada

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1. STUDY BACKGROUND AND PROCEDURES

1.1 Introduction

Motor vehicle emissions are the single largest source of air pollution in Canada. In order to reduce pollution, the 'new vehicle' emission standards are currently being reviewed with a view to adopting more stringent standards. If these new standards are adopted, we understand that pollution from new cars would be reduced by over 50%.

In July of 1984, the Industrial Programs Branch of Environment Canada engaged Optima Consultants to carry out a national public opinion survey to determine the extent of public awareness of pollution from cars, and to measure support for the adoption of more stringent emission standards.

Incidentally, installation of a higher standard catalytic converter in new vehicles to meet U.S. standards may entail increased vehicle prices by up to 2%. Recently, Optima completed a qualitative probe among drivers to evaluate consumer reaction to the cost/benefit angle of this question. See report entitled 'Public Perceptions Regarding Pollution Control and Higher Vehicle Emission Standards' dated March 27, 1984 and prepared for Environment Canada.

This report presents the basic findings of this study. Michael Saykaly acted as project director and received much assistance from Vic Shantora and Gordon Harris of Environment Canada. We are also indebted to Domenic Schiappa of Thompson Lightstone who supervised data collection and processing. Michelle Renaud of Optima prepared this report, with technical assistance from Michael Saykaly.

1.2 Methodology

The questionnaire was designed by Optima in co-operation with Environment Canada. Following consultations with officials from the Industrial Programs Branch, a final version was prepared, translated, and integrated into the July 1984 wave of the Omnitel, a national shared-cost telephone omnibus survey administered by Thompson Lightstone Inc. (Toronto).

A copy of the questionnaire is found in Appendix 4.1. Due to the limited access of space in shared cost omnibus survey vehicles and to budget constraints, not all relevant question areas could be probed.

Interviews were conducted over the telephone with a representative sample of 2,000 Canadian adults. The reader should bear in mind that the margin of error for the sample as a whole is $\pm$ 2% at the 95% confidence level. The margins of error for sub-groups in the sample are somewhat higher. For further information on study methodology pertaining to sampling, data collection and processing, and detailed statistical tables, please consult our detached appendix 4.2 in the Thompson Lightstone Omnitel Report.

ATTITUDES À L'ÉGARD DE LA POLLUTION ATMOSHPÉRIQUE ET DE L'ADOPTION DE NORMES PLUS RIGOUREUSES CONCERNANT LES ÉMISSIONS DE VÉHICULES À MOTEUR (Résultats d'un sondage d'opinion national)

1 CADRE ET MÉTHODOLOGIE

1.1 Introduction

Les émissions des véhicules à moteur représentent la plus importante source de pollution atmosphérique au Canada. Afin de réduire la pollution, on envisage de rendre plus sévères les normes actuelles relatives aux émissions des nouveaux véhicules. L'adoption de nouvelles normes se traduirait, semble-t-il, par une diminution de plus de 50 % de la pollution dégagée par les nouvelles automobiles.

En juillet 1984, la Direction des programmes industriels d'Environnement Canada a confié à la société Les Conseillers Optima la réalisation d'un sondage d'opinion national visant à déterminer dans quelle mesure le public est sensibilisé au problème de la pollution causée par les automobiles et à évaluer quel appui la population donnerait à l'adoption de normes plus rigoureuses sur les émissions.

Soit dit en passant, l'installation dans les nouveaux véhicules d'un convertisseur catalytique répondant aux normes américaines, plus élevées, pourrait entraîner une augmentation du prix des véhicules allant jusqu'à 2 %. Dernièrement, Optima a terminé une enquête qualitative auprès des automobilistes afin d'évaluer la réaction des consammateurs à la problématique du coût et des avantages d'une telle mesure. Voir à ce sujet le rapport Public Perceptions Regarding Pollution Control and Higher Vehicle Emission Standards, du 27 mars 1984, préparé pour Environnement Canada.

Le présent rapport donne les principales conclusions de l'étude. Michael Saykaly a agi à titre de directeur de recherche et a reçu une aide précieuse de Vic Shantora et de Gordon Harris d'Environnement Canada. Nous tenons aussi à remercier Domenic Schiappa, de Thompson Lightstone, qui a supervisé la collecte et le traitement des données. Michelle Renaud d'Optima a préparé le rapport, avec l'aide technique de Michael Saykaly.

1.2 Méthodologie

Le questionnaire a été conçu par Optima, en collaboration avec Environnement Canada. Après consultations avec la Direction des programmes industriels, une version finale a été préparée, traduite et ajoutée à l'enquête Omnitel, une enquête omnibus par téléphone, à frais partagés, effectuée à l'échelle du pays par Thompson Lightstone Inc., de Toronto.

Le questionnaire se trouve à l'annexe 4.1. À cause des limites imposées par les enquêtes omnibus à frais partagés et des compressions budgétaires, tous les domaines pertinents n'ont pu être examinés.

Les interviews ont été réalisées par téléphone auprès d'un échantillon représentatif de 2000 Canadiens adultes. Le lecteur doit se rappeler que la marge d'erreur pour l'échantillon dans son ensemble est de $\pm$ 2 %, à un niveau de confiance de 95 %. La marge d'erreur pour les sous-groupes est un peu plus grande. Pour renseignements sur les méthodes d'échantillonnage, de collecte et de traitement des données, et les tableaux statistiques détaillés, consulter l'annexe séparée 4.2 tirée du rapport de l'enquête Omnitel.

2 RÉSUMÉ

2.1 Points saillants

Voici les principaux points saillants d'une enquête téléphonique nationale effectuée auprès d'un échantillon représentatif composé de 2 000 Canadiens adultes.

2.1.1 Conception de la pollution atmosphérique. Près de la moitié (47 %) des répondants estiment que la pollution de l'eau constitue actuellement le type le plus grave de pollution au Canada, tandis qu'un nombre légèrement inférieur de répondants (43 %) pensent que la pollution de l'air est plus grave.

Trois quarts (75 %) des répondants indiquent que les véhicules à moteur causent une certaine partie de la pollution de l'air, tandis qu'un quart (24 %) croient que les véhicules à moteur sont responsables de la plus grande partie (22 %) ou de la totalité (2 %) de celle-ci.

Huit répondants sur dix (79 %) pensent que les déchets industriels des usines et des centrales alimentées au charbon constituent la principale cause de la pollution de l'air. Environ un répondant sur dix (12 %) indique que les émissions des véhicules à moteur sont la principale cause de cette pollution, tandis que 6 % l'attribuent aux pesticides et aux herbicides.

Environ la moitié (52 %) des répondants pensent que la plus grande partie de la pollution de l'air est produite au Canada, tandis que le tiers (33 %) croient qu'elle vient des Etats-Unis.

Quatre Canadiens adultes sur dix (41 %) pensent que les normes relatives au contrôle de la pollution atmosphérique sont moins rigoureuses aux Etats-Unis qu'au Canada, tandis que trois sur dix (30 %) pensent le contraire; environ un sur dix (12 %) indique qu'elles sont à peu près identiques et environ deux sur dix (18 %) n'en ont aucune idée.

Une majorité de Canadiens adultes (59 %) estiment que le gouvernement canadien devrait renforcer ses normes antipollution en ce qui concerne les véhicules à moteur, tandis que près de quatre répondants sur dix (38 %) pensent qu'il ne devrait pas les modifier.

Deux tiers des Canadiens adultes (67 %) sont d'avis qu'un véhicule à moteur muni d'un système antipollution est effectivement moins polluant. Par contre, près de la moitié (47 %) pensent qu'un système antipollution tend à exiger beaucoup d'entretien et de

révisions. Près de six répondants sur dix (56 %) estiment que l'utilisation d'essence au plomb peut diminuer l'efficacité du système antipollution d'un véhicule.

Près de la moitié (47 %) des répondants pensent que le système antipollution des véhicules à moteur diminue l'économie d'essence, 12 % estiment qu'il l'augmente, et 30 % sont d'avis qu'il n'a aucun effet sur la consommation.

Une grande majorité (84 %) de Canadiens d'adultes pensent que la mise au point des véhicules a effectivement des conséquences sur la pollution de l'air.

Sept répondants sur dix (69 %) seraient en faveur de l'imposition d'une révision annuelle du système antipollution des véhicules. Environ six sur dix (62 %) appuieraient l'interdiction de l'utilisation de l'essence au plomb pour les véhicules devant fonctionner à l'essence sans plomb. Six personnes sur dix (60 %) favoriseraient l'interdiction du débranchement du convertisseur catalytique.

Près des deux tiers des répondants pensent que l'utilisation d'essence au plomb dans un véhicule conçu pour fonctionner à l'essence sans plomb augmente la pollution de l'air (67 %), endommage le convertisseur catalytique (66 %), et cause un moins bon fonctionnement du véhicule (64 %). Quatre personnes sur dix (41 %) estiment qu'une telle pratique réduit l'économie de carburant.

2.1.2 Convertisseur catalytique. Environ sept Canadiens adultes sur dix (72 %) ont entendu parler du convertisseur catalytique.

Parmi les personnes qui savent ce qu'est un convertisseur catalytique, deux sur dix (19 %) signalent que ce dispositif s'est déjà brisé dans un véhicule appartenant à un membre de leur foyer.

Des 14 % des répondants qui savent ce qu'est un convertisseur catalytique et qui signalent que ce dispositif s'est déjà brisé dans un véhicule appartenant à un membre de leur foyer, environ cinq sur dix (53 %) indiquent qu'il a été débranché complètement, tandis que quatre sur dix (41 %) font savoir qu'il a été remplacé.

Des 6 % de l'ensemble des répondants qui signalent qu'un convertisseur défecteux a été remplacé, quatre sur dix (39 %) déclarent que son débranchement a été envisagé. La raison la plus fréquemment invoquée pour ne pas l'avoir fait, c'est que le débranchement est illégal.

Voici les principales raisons mentionnées pour le débranchement du convertisseur: économiser davantage de carburant/améliorer la consommation d'essence (24 %); remplacement trop coûteux (18 %); pour utiliser de l'essence au plomb puisqu'elle est moins chère (10 %); "engorgement" du convertisseur (10 %); meilleur rendement (9 %);

augmenter la puissance (8 %); inefficacité (7 %); danger/accumulation de chaleur (6 %); dégagement d'une odeur désagréable quand il est chaud (4 %), blocage de l'échappement (2 %).

En résumé, nous pouvons tirer les conclusions suivantes en ce qui concerne le convertisseur catalytique:

- 72 % des répondants ont entendu parler du convertisseur catalytique;
- 14 % des répondants signalent qu'un convertisseur catalytique est déjà tombé en panne dans un véhicule appartenant à un membre de leur foyer;
- 9 % des répondants indiquent qu'un membre de leur foyer a déjà songé à débrancher le convertisseur;
- 6 % des répondants font savoir qu'un membre de leur foyer a remplacé un convertisseur catalytique défectueux (dont 2 % des personnes qui ont déjà songé au débranchement);
- 7 % des répondants indiquent qu'un membre de leur foyer a débranché le convertisseur catalytique de son automobile.

Ainsi, au-delà de trois fois plus de répondants qui ont songé au débranchement l'ont fait, comparativement à ceux qui ont songé au débranchement mais qui ont remplacé l'unité défectueuse (7 % par rapport à 2 %). Dans quelle mesure ont-ils été influencés par l'avis d'un mécanicien?

2.1.3 Questions portant sur les conducteurs. Huit Canadiens adultes sur dix (79 %) conduisent un véhicule au moins une fois par semaine.

Les trois quarts (74 %) de ces conducteurs signalent qu'ils suivent régulièrement le calendrier d'entretien du fabricant.

Sept conducteurs sur dix (70 %) ont une automobile qui doit normalement rouler à l'essence sans plomb, un quart (26 %) ont une automobile qui peut rouler à l'essence au plomb.

Légèrement plus d'un conducteur sur dix (13 %) d'une automobile roulant à l'essence sans plomb avoue faire le plein avec une autre essence à l'occasion.

Environ deux conducteurs sur dix (22 %) d'un véhicule qui peut rouler à l'essence au plomb mentionnent utiliser parfois de l'essence sans plomb.

2.2 Conclusions et recommandations

On a demandé deux fois aux répondants la part que représentaient les véhicules automobiles dans la pollution de l'air. Quand on leur demandait (Q2) si les

véhicules à moteur causaient la totalité, la plus grande partie, une certaine partie de la pollution atmopshérique ou n'y jouaient aucun rôle, un quart des personnes interrogées (24 %) indiquaient que les véhicules à moteur causaient la totalité (2 %) ou la plus grande partie (22 %). Cependant, quand on leur énumérait d'autres sources de pollution (Q3), telles que les déchets industriels, les pesticides et les herbicides, les bombes aérosol, les foyers et les poêles à bois, la proportion des répondants qui indiquaient que les véhicules à moteur causaient la plus grande partie de la pollution de l'air tombait à 12 % seulement.

Une majorité de Canadiens (52 %) ne semblent pas tenir les Etats-Unis responsables de la pollution de l'air au Canada. Toutefois, près de quatre sur dix (41 %) estiment que les règlements aux Etats-Unis sont moins sévères que ceux du Canada, tandis que trois sur dix (30 %) croient le contraire.

Les Canadiens semblent quelque peu partagés en ce qui concerne les systèmes antipollution des véhicules. Même si une majorité (67 %) appuierait des mesures gouvernementales visant à réduire la pollution par les véhicules automobiles, près de la moitié (47 %) estime qu'un système antipollution exige beaucoup d'entretien et de fréquentes révisions et entraîne une plus grande consommation d'essence.

Le sondage indique qu'une majorité importante de Canadiens (79 %) pense que la pollution de l'air est principalement attribuable aux déchets industriels émanant des usines et des centrales alimentées au charbon. Seulement 12 % considèrent les émissions des véhicules comme la principale cause, même si les trois quarts (75 %) pensent, cependant, que ces émissions causent au moins une partie de la pollution de l'air. Comme il est impossible de savoir, à l'heure actuelle, la mesure dans laquelle les Canadiens pensent que cette contribution partielle est dangereuse pour l'environnement, nous suggérons d'insister, dans les médias, sur les dommages que les émissions des véhicules causent à la santé, à la propriété ainsi qu'à l'environnement, plutôt que de traiter du rôle des usines et des centrales.

Les résultats du sondage nous amènent à penser que la principale raison pour laquelle les gens remplacent leur convertisseur catalytique, c'est parce qu'ils croient que c'est illégal de ne pas le faire; s'ils le débranchent, c'est principalement parce qu'ils estiment que cela entraînera un meilleur rendement ou leur permettra d'utiliser de l'essence au plomb moins chère. Si nous prenons aussi en considération le fait que près de la moitié des gens croient qu'un système antipollution leur apportera certains problèmes (économie d'essence réduite, plus d'entretien et de révisions), il semble qu'une campagne d'information devrait chercher: d'une part à sensibiliser davantage le public un rôle positif que jouent maintenant les systèmes antipollution dans la bonne marche générale du

véhicule; d'autre part à démontrer les avantages environnementaux supplémentaires qui découleraient de la réparation de systèmes défecteux, de la remise en service des systèmes débranchés et de l'application des normes américaines sur les émissions pour les nouveaux véhicules.

Nous craignons, compte tenu du fait que le débranchement du convertisseur catalytique est illégal, que le nombre réel de débranchements pourrait, en fait, être considérablement plus élevé que celui qui est indiqué ici.

En évaluant les opinions et les pratiques des propriétaires de garage et des mécaniciens concernant les convertisseurs catalytiques, le Ministère serait en meilleure position pour amener une réduction des émissions nocives et toxiques des véhicules au Canada. Dans la mesure où les opinions et les attitudes des mécaniciens sont fondées sur des faits qui ne sont plus justifiés aujourd'hui (par exemple, les convertisseurs réduisent l'économie de carburant et tendent à causer des problèmes), toute campagne "corrective" destinée aux automobilistes est vouée à l'échec à moins qu'elle ne soit précédée d'une campagne "corrective" menée auprès des mécaniciens pour les amener à changer d'idée.

Les règlements interdisant de toucher au convertisseur catalytique semblent fonctionner. L'Ontario, la seule province qui a adopté un règlement en ce sens, et, inexplicablement, le Québec, comptent le moins de véhicules "reconvertis"; l'Ouest et l'Atlantique, par contre, en comptent le plus.

2. EXECUTIVE SUMMARY

2.1 Highlights

The following points constitute the major highlights resulting from a national telephone survey conducted among a representative sample of 2,000 Canadian adults.

2.1.1 conception of air pollution

- Approximately one half (47%) of respondents think that water pollution is presently the most serious type of pollution in Canada, while slightly fewer respondents (43%) think that air pollution is most serious.

- Three quarters (75%) of respondents say that motor vehicles cause some of the pollution of the air, while one quarter (24%) think that motor vehicles cause most (22%) or all (2%) of it.

- Eight out of ten respondents (79%) think that industrial waste from factories and coal-fired hydro plants is the major cause of air pollution. Approximately one out of ten (12%) say that motor vehicle emissions are the major cause, while 6% say that pesticides and herbicides are the major cause.

- Approximately one half (52%) of respondents think that most air pollution is produced in Canada, while one third (33%) think it is blown here from the United States.

- Four out of ten (41%) adult Canadians think that the standards for controlling air pollution are weaker in the United States than in Canada, while three out of ten (30%)

think they are tougher in the United States; approximately one out of ten (12%) say they are about the same, and about two out of ten (18%) say they do not know.

- A majority of adult Canadians (59%) feel that the Canadian government should strengthen its anti-pollution standards concerning motor vehicles, while nearly four out of ten respondents (38%) think that it should keep these standards as they are.

- Two thirds of Canadian adults (67%) agree that an anti-pollution system really cuts down on the amount of pollution caused by motor vehicles. On the other hand, almost one half (47%) of Canadians think that an anti-pollution system tends to require a lot of maintenance and servicing. Nearly six out of ten respondents (56%) believe that the use of leaded gasoline can reduce a vehicle's anti-pollution system's effectiveness.

- Almost one half (47%) of respondents think that the anti-pollution system on motor vehicles reduces fuel economy, 12% think that it improves fuel economy, and 30% think that it does not affect fuel economy.

- A vast majority (84%) of adult Canadians think that vehicle tune-ups <u>do</u> have an effect on air pollution.

- Seven respondents out of ten (69%) say they would support a compulsory annual servicing of the anti-pollution system on vehicles. Approximately six out of ten (62%) say they would support prohibiting the use of leaded gasoline in vehicles designed to use unleaded gasoline. Another six out of ten (60%) say they would support prohibiting disconnection of a vehicle's catalytic converter.

- Almost two thirds of respondents think that misfueling would increase air pollution (67%), damage the catalytic converter (66%), and cause the vehicle to run less smoothly (64%). Four out of ten (41%) think that misfueling would reduce fuel economy.

2.1.2 experience with the catalytic converter

- Approximately seven out of ten (72%) adult Canadians say they have heard of the catalytic converter.

- Among those aware of the catalytic converter, two out of ten (19%) report having heard of this device breaking down in a vehicle owned by a member of their household.

- Of the 14% of respondents who have both heard of the converter and are aware of this device breaking down in a vehicle owned by a member of their household, about five out of ten (53%) say that it was disconnected altogether, while four out of ten (41%) say that it was replaced.

- Of the 6% of total respondents who report replacing a defective converter, four out of ten (39%) report that consideration had been given to disconnecting it. The most frequently cited reason for not disconnecting the device was that this is illegal.

- Reasons mentioned for disconnecting the converter include: 'better fuel economy/improves gas consumption' (24%), 'too costly to replace' (18%), 'to use leaded gas since it is less costly' (10%),'converter became plugged up' (10%), 'better perfomance' (9%), 'to improve power' (8%), 'was not effective' (7%), 'fuel hazard/heat build up' (6%), 'unpleasant smell when hot' (4%), and 'blocked the exhaust' (2%).

- In recapitulation, we project the following incidences regarding the catalytic converter:
  - 72% of respondents have heard of the catalytic converter
  - 14% of respondents report household experience with a defective catalytic converter
  - 9% of respondents report household consideration of disconnecting converter
  - 6% of respondents report household replacement of defective converter (includes 2% who considered disconnection)
  - 7% of respondents report household disconnection of catalytic converter

  Thus, more than three times as many respondents who considered disconnection followed through, compared to those who considered disconnection but replaced the defective unit (7% as compared to 2%). To what extent have they been influenced by a mechanic's suggestion?

2.1.3 drivers' series

- Eight out of ten (79%) adult Canadians report driving a motor vehicle at least once a week.
- Three quarters (74%) of these drivers say they regularly follow their vehicle manufacturer's maintenance schedule.
- Seven out of ten drivers (70%) have a car which is normally supposed to run on unleaded gasoline, one quarter (26%) have a car which can run on leaded.
- Slightly more than one out of ten (13%) drivers of a car running on unleaded gasoline report misfueling occasionally.
- Approximately two out of ten (22%) drivers of a vehicle which can run on leaded gasoline report occasional use of unleaded.

2.2 Conclusions and Recommendations

- Respondents were twice asked about motor vehicles' contribution to air pollution. When asked (Q.2) whether motor vehicles cause all, most, some or none of the air pollution, one quarter (24%) say that motor vehicles cause 'all' (2%) or 'most' (22%). However, when presented a list of other pollution sources (Q.3), such as industrial waste, pesticides and herbicides, aerosol sprays, and fireplaces and wood stoves, the proportion of respondents who say that motor vehicles cause most air pollution is only 12%.

- A majority of Canadians (52%) do not appear to hold the United States responsible for air pollution in Canada. However, almost four out ot ten (41%) believe that government regulations in the States are weaker than those in effect in Canada, while three out of ten (30%) believe the opposite.

- Canadians appear to be somewhat ambivalent towards vehicular anti-pollution systems. Although a majority (67%) would support the government cutting down on the amount of vehicular pollution, almost one half (47%) believe that an anti-pollution system tends to require a lot of maintenance and servicing and causes reduced fuel economy.

- This survey indicates that an overwhelming majority of Canadians (79%) believe that the primary cause of air pollution is industrial waste from factories and coal-fired hydro plants. Only 12% identify vehicular emissions as the primary cause, although fully three quarters (75%) do believe that these emissions cause at least some air pollution. As it is impossible to know at this moment the degree to which Canadians think that this partial contribution is harmful to the environment, we suggest that more focus should be put on media communications on the damage to health and property caused by vehicular emissions to the environment as compared to the contribution made by factories and plants.

- Results from this survey lead us to believe that the main reason why people replace their catalytic converter is because they believe it to be illegal while the main reasons for disconnecting are the perception that it will result in better performance or permit them to use the cheaper leaded gasoline. If we also take into consideration the fact that almost one half of the public believe that an anti-pollution system will bring them some problems (reduced fuel economy, more maintenance and servicing), it appears that an information campaign should seek to promote public awareness of the positive contribution now made by vehicular anti-pollution systems in good operating order as well as to demonstrate the further environmental benefits which would accrue from restoring defective and disconnected systems, and by implementing U.S. emission standards for new vehicles.

- We suspect that given the fact that disconnecting the catalytic converter is illegal, the actual incidence of disconnecting it may, in fact, be significantly higher than is reported here.

- An assessment of opinions and practices of garage owners and mechanics regarding catalytic converters will enable the Department to act more effectively to reduce noxious and toxic vehicular emissions in Canada. To the extent that the opinions and attitudes of mechanics are based on facts which no longer prevail (e.g., converters reduce fuel economy and tend to cause problems), any 'corrective' communications campaign geared to drivers is bound to be ineffective unless preceded with a 'corrective' campaign to get mechanics on board.

- Regulation to prohibit tampering with the catalytic converter appears to work. Ontario, the only province which has regulated in this area, and, unaccountably, Quebec, are under represented among vehicles which have been 'deconverted; while the West and the Atlantic are over represented.

3. DETAILED SUMMARY OF FINDINGS

In this section, results to individual questions are analysed by theme and, therefore, are not necessarily in the order in which they appear on the questionnaire. Question numbers, verbatim wordings and results are shown on left-hand pages. Narrative analysis of results are shown on facing (right-hand) pages. A detailed statistical breakdown of results may be found in the detached appendix where questions are placed in numerical order.

Total percentages may range from 99 to 101 due to rounding of percentages. Where response categories add up to more than 101, this is due to multiple responses; in certain cases, respondents are invited to provide as many answers to a question as apply. In cases where the number of respondents is small, percentages are not given due to the unacceptably high margin of error.

The social science literature is replete with evidence which shows that certain groups tend to acquiesce more to certain types of statements and to say they 'don't know' more often than do other groups. On the subject of catalytic converters, it is perhaps understandable that males, drivers and those with higher education tend to be more knowledgeable than are females, non-drivers and those with primary education. Thus, the reader should bear this point in mind, as we do not repeat the point when analysing each table.

Q.1 Now I would like to ask a few questions about pollution. In your opinion, which of the following types of pollution is presently most serious in Canada? (READ LIST - ROTATE ORDER)

Asked of 100% of the sample.

Sample size	(2,000)
	%
Water pollution	47
Air pollution	43
Soil pollution	4
Air and water	1
All are serious	2
Do not know	2
	99

3.1 Conception of Air Pollution

Under this theme, we have regrouped the following questions: Q.1 to Q.8 (inclusively), Q.15, Q.16 and Q.22.

3.1.1 most serious type of pollution (Q.1)

Almost one half (47%) of adult Canadians think that water pollution is presently the most serious type of pollution in Canada, while a slightly smaller proportion (43%) think that air pollution is the most serious.

The incidence of thinking that air pollution is the most serious type of pollution is highest in the Atlantic (53%) and in B.C. (51%) and lowest in Man./Sask. (37%), Alberta (38%) and Quebec (38%) (Ontario 45%). Overall, francophones are somewhat more likely (53%) than anglophones (45%) to consider water pollution the most serious type of pollution.

Q.2 Thinking about air pollution in particular. Do you think that motor vehicles cause _____ (FOLLOW ROTATION - READ TOP TO BOTTOM OR BOTTOM TO TOP) air pollution?

Asked of 100% of the sample

Sample size	(2,000)
	%
All	2
Most	22
Some	75
No pollution	2
	101

3.1.2 motor vehicles and air pollution (Q.2)

Three-quarters (75%) of adult Canadians think that motor vehicles cause some air pollution, while about one quarter (24%) think that they cause most (22%) or all (2%) of it.

The incidence of saying that motor vehicles cause most air pollution is higher in Quebec (35%) than in the other regions of Canada (B.C.: 23%, Alberta: 24%, Man./Sask.: 13%, Ontario: 16%, Atlantic: 16%). Francophones are more likely (31%) than anglophones (16%) to say that motor vehicles cause most air pollution. The same holds true for residents of Montreal (39%) as compared to Toronto (16%) and Vancouver (20%).

Persons in favor of strengthening government standards are more likely (28%) to say that motor vehicles cause most air pollution than persons in favor of the status quo (12%).

Q.3 And which ONE of the following factors do you think contributes most to air pollution?
(READ LIST - ROTATE ORDER) (RECORD ONE ANSWER ONLY)

Asked of 100% of the sample

Sample size	(2,000)
	%
Industrial waste from factories and coal-fired hydro plants . . .	79
Motor vehicle emissions.	12
Pesticides/herbicides	6
Aerosol sprays.	1
Individual fireplaces and woodburning stoves	1
Do not know.	1
	100

3.1.3 major cause (Q.3)

Eight out of ten respondents (79%) think that industrial waste from factories and coal-fired hydro plants is the major cause of air pollution, while about one out of ten (12%) think that motor vehicle emissions are the major cause.

The incidence of saying that industrial waste from factories and coal-fired hydro plants is the major cause of air pollution appears to be higher among younger and better educated persons: 85% of persons 18-29 years of age and 80% of persons 30-49 years of age say this is the major cause, as compared to 72% of persons 50 years and over. The same holds true for persons with high school (81%) or university (80%) education as compared to persons with primary education (68%).

Persons in favor of strengthening government vehicle emission standards are more likely (16%) to think that motor vehicle emissions are the major cause of air pollution than are persons in favor of the status quo (6%).

Q.4 Do you think that most air pollution in Canada is... (READ LIST)

Asked of 100% of the sample

Sample size	(2,000)
	%
Produced in Canada	52
Blown from United States	33
Both	7
Do not know.	8
	100

3.1.4 U.S. vs. Canadian sources of pollution (Q.4)

Approximately one half (52%) of adult Canadians think that most air pollution is produced in Canada, while one third (33%) think that most of it is blown from the United States. More males (38%) than females (28%) think that most air pollution is blown from the United States.

Among the regions, the incidence of saying that most air pollution is produced in Canada is highest in Ontario (54%), Man./Sask. (61%), Alberta (59%), and B.C. (55%), and lowest in the Atlantic (44%) and in Quebec (44%). The incidence of thinking that most air pollution is produced in Canada appears to decrease with age with 58% of persons 18-29 years of age and 53% of persons 30-49 years of age sharing this opinion, as compared to 44% of persons 50 years and over.

Persons who think that emissions from motor vehicles contribute most to air pollution are more likely (66%) than other groups (50%) to say that most air pollution is produced in Canada.

Q.5 In regard to the standards for controlling air pollution, do you think the standards in the United States* are tougher or weaker than in Canada?

Asked of 100% of the sample

Sample	(2,000)
	%
Weaker.	41
Tougher	30
About the same	12
Do not know	18
	100

* Thompson Lighstone accidently dropped the crucial word 'than' from the English version of the questionnaire (the French was not affected). The error was caught in time in many centers, but not all; in these latter cases, the response categories for 'weaker' and 'tougher' have been inverted.

3.1.5 American air pollution standards tougher or weaker than Canadian? (Q.5)

Four out of ten (41%) adult Canadians think that the standards for controlling air pollution are weaker in the United States than in Canada, while three out of ten (30%) think that they are tougher in the States. Approximately one out of ten (12%) say that the standards in the two countries are about the same, while almost two out of ten (18%) say that they do not know.

Ontario residents are more likely (51%) to say that American standards are weaker than are residents of other regions (Atlantic: 26%, Quebec: 38%, Man./Sask.: 33%, Alberta: 35%, B.C.: 35%). Persons who think that most of our air pollution is blown from the United States are more likely (50%) to say that American standards are weaker, as compared to persons who think that most air pollution is produced in Canada (35%).

Q.6 Should the Canadian government strengthen anti-pollution standards concerning motor vehicles, or keep them as they are?

Asked of 100% of the sample

Sample size	(2,000)
	%
Should strengthen standards . . .	59
Should keep as they are.	38
Do not know.	3
	100

3.1.6 sufficiency of Canadian standards (Q.6)

A majority of Canadian adults (59%) say that the Canadian government should strengthen its anti-pollution standards concerning motor vehicles, while almost four out of ten respondents (38%) think that the government should keep them as they are. More females (64%) than males (54%) feel that the standards should be strengthened.

The incidence of saying that standards should be strengthened is highest in Quebec (72%) and lowest in Man./Sask. (40%), as compared to other regions (Atlantic: 53%, Ontario: 55%, Alberta: 58%, B.C.: 61%). Overall, francophones are more likely (68%) than anglophones (55%) to say that these standards should be strengthened.

Drivers are more likely (41%) than non-drivers (27%) to say that government standards should be kept as they are. The same holds true for respondents who think that emissions from motor vehicles contribute most to pollution (78%), as compared to those who think that another source contributes most to pollution (57%).

Q.7 As you may know, recent model vehicles have an anti-pollution system. Please tell me whether you AGREE or DISAGREE with each of the following statements regarding the anti-pollution system. (READ LIST)

Asked of 100% of the sample

Sample size	(2,000)
	%
They really cut down on the amount of pollution caused by motor vehicles.	
Agree	67
Disagree	24
Do not know	9
	100
They tend to require a lot of maintenance and servicing.	
Agree	47
Disagree	39
Do not know	14
	100
The use of leaded gasoline can reduce their ability to decrease pollution	
Agree	56
Disagree	25
Do not know	19
	100

3.1.7 evaluation of anti-pollution system (Q.7)

In question 7, we presented respondents with three statements regarding vehicular anti-pollution systems and asked whether they agreed or disagreed with each. Two thirds (67%) agree that the system 'really cuts down on the amount of pollution caused by motor vehicles'. Sligthly less than six out of ten persons (56%) agree that 'the use of leaded gasoline can reduce their ability to decrease pollution'. Almost one half of the sample (47%) agree that the system 'tends to require a lot of maintenance and servicing'. The percentage of persons who say they don't know is higher for the last two statements (respectively 19% and 14%) compared to 9% for the first statement.

The incidence of agreeing that an anti-pollution system cuts down on pollution is highest in central Canada (Quebec: 71%, Ontario: 70%) and lowest in Man./Sask. (56%) and B.C. (60%) as compared to elsewhere (Alberta: 63%, Atlantic: 67%). Owners of a car using unleaded gasoline are more likely (71%) to agree with this last statement than owners of a car using leaded (59%).

The incidence of disagreeing that an anti-pollution system tends to require a lot of maintenance and servicing appears to increase with household income: 47% of persons whose household income is between $25,000 and $30,000 and 51% of persons whose household income is over $30,000 do not think that an anti-pollution system tends to require a lot of maintenance and servicing; 30% of persons whose household income is under $15,000 and 34% of persons whose income is between $15,000 and $25,000 feel this way. Drivers are more likely (43%) than non-drivers (23%) to disagree with this last statement. The same holds true for persons having heard of the converter (42%) as compared to persons not having heard of it (29%).

Q.8 Do you think that the anti-pollution system on motor vehicles improves fuel economy, reduces fuel economy, or does it not affect fuel economy.

Asked of 100% of the sample

Sample size	(2,000)
	%
Improves fuel economy	12
Reduces fuel economy.	47
Does not affect it	30
Do not know.	11
	100

3.1.7 evaluation of anti-pollution system (Q.8)

Nearly one half (47%) of adult Canadians think that the anti-pollution system on motor vehicles reduces fuel economy, while three Canadians out of ten (30%) think it does not affect fuel economy, and about one out of ten (12%) think that it improves fuel economy. Far more males (58%) than females (36%) think that fuel economy is reduced by an anti-pollution system.

The incidence of saying that the anti-pollution system reduces fuel economy is highest in Alberta (62%) and B.C. (57%) and lowest in Quebec (38%), as compared to elsewhere (Atlantic: 42%, Ontario: 48% and Man./Sask.: 48%). It is also higher among anglophones (52%) than francophones (39%).

Drivers are more likely (51%) than non-drivers (31%) to feel that the system reduces fuel economy. The same holds true for persons having heard of the converter (53%) as compared to persons not having heard of it (31%), and for persons in favor of keeping government standards as they are (53%) as compared to persons in favor of strengthening them (44%).

Q.15 Do you think that vehicle tune-ups have an effect on air pollution or not?

Asked of all the sample

Sample size	(2,000)
	%
Yes	84
No.	12
Do not know.	4
	100

3.1.8 effect of tune-ups (Q.15)

A vast majority (84%) of adult Canadians think that vehicle tune-ups have an effect on air pollution. This finding applies across all sub-groups in the sample.

Q.16 Certain things could be done in order to reduce air pollution. Would you, personally, support or not support each of the following? (READ LIST)

Asked of all the sample

Sample size	(2,000)
	%
Compulsory annual servicing of the anti-pollution system on vehicles	
Yes	69
No.	27
Do not know.	3
	99
Prohibit the use of leaded gasoline in vehicles designed to use unleaded gasoline	
Yes	62
No.	31
Do not know.	7
	100
Prohibit disconnecting the vehicles catalytic converter	
Yes	60
No.	30
Do not know.	9
	99

3.1.9 support for anti-pollution measures (Q.16)

When asked if they would support different measures in order to reduce air pollution, approximately seven Canadians out of ten (69%) would support compulsory annual servicing of the anti-pollution system on vehicles; about six out of ten (62%) would prohibit the use of leaded gasoline in vehicles designed to use unleaded gasoline; and another six out of ten (60%) would prohibit disconnecting the vehicle's catalytic converter. In general, Quebecers, francophones, those using leaded gasoline and,unsurprisingly, those who support strengthening government standards tend to support these measures more so than do other groups.

compulsory annual servicing

The incidence of supporting compulsory servicing is highest in Quebec (77%) and in the Atlantic (73%) and lowest in Man./Sask. (56%). (Ontario: 68%, Alberta: 66%, B.C.: 66%) More francophones (75%) than anglophones (65%) say they would support this measure. More drivers (79%) than non-drivers (66%) would also support compulsory servicing. The same holds true for persons who think that an anti-pollution system improves or does not affect fuel economy (77%) as compared to those who think that it reduces fuel economy (62%), for persons not having heard of the converter (78%) as compared to those who have heard of it (66%), for owners of a car using unleaded gasoline (70%) in contrast with those using leaded gasoline (57%), and for persons who think that government anti-pollution standards should be strengthenend (80%) as compared to persons in favor of the status quo (54%).

(See table on previous page)

prohibit misfueling

The incidence of supporting prohibition of the use of leaded gasoline in vehicles designed to use unleaded is highest in central Canada (Quebec: 67%, Ontario: 66%) and lowest in Man./Sask (53%) and in Alberta (53%) (B.C.: 56%, Atlantic: 61%). More persons in favor of strengthening government standards (70%) would also approve of prohibiting the use of leaded gasoline in vehicles designed to use unleaded than those favoring the status quo (52%).

prohibit disconnection

Persons living in Quebec and in Ontario are more likely (respectively 71% and 62%) to support prohibiting the disconnection of catalytic converters than are persons from other regions (Man./Sask.: 43%, Alberta: 47%, Atlantic: 55%, B.C.: 55%). More francophones (68%) than anglophones (57%) would also support this measure. As appears to be the case with the two previous statements, we notice that more persons who think that government standards should be strengthened (69%) than persons in favor of the status quo (49%), and more owners of a car using unleaded gasoline (65%) than leaded (51%) would support this third statement.

Q.22 Do you think that the use of leaded gasoline in a vehicle designed to use unleaded gasoline will do any of the following? (READ LIST)

Asked of all the sample

Sample size	(2,000)
	%
Increases air pollution	
Yes	67
No.	18
Do not know.	15
	100
Damages the catalytic converter	
Yes	66
No.	13
Do not know.	21
	100
Causes vehicle to run less smoothly smoothly	
Yes	64
No.	22
Do not know.	14
	100
Reduces fuel economy	
Yes	41
No.	38
Do not know.	20
	99

3.1.10 perceived consequences of misfueling (Q.22)

In this question we presented respondents with a series of statements which deal with the possible consequences of using leaded gasoline in a vehicle designed to use unleaded. It appears that approximately two thirds think that misfueling would increase air pollution (67%), damage the catalytic converter (66%), and cause the vehicle to run less smoothly (64%). About four out of ten respondents (41%) think that misfueling would reduce fuel economy. Drivers and those using unleaded gasoline are more likely to be knowledgeable about the consequences of misfueling as compared to other groups.

air pollution

The incidence of thinking that misfueling can increase air pollution is highest in Ontario (74%) and lowest in Man./Sask. (58%). (Alberta: 71%, B.C.: 65%, Atlantic: 65%, Quebec: 61%) Respondents living in Toronto are more likely (80%) to say that misfueling can increase air pollution as compared to those in Montreal (59%) or in Vancouver (59%). More drivers (70%) than non-drivers (57%) also share this opinion. The same holds true for owners of a car using unleaded gasoline (76%) as compared to those using leaded (56%), and for persons having heard of the catalytic converter (71%) as compared to persons not having heard of it (57%).

damages converter

The incidence of thinking that misfueling will damage the converter is highest in Ontario (73%) and lowest in Quebec (58%) and in B.C. (59%) (Alberta: 68%, Man./Sask.: 64%, Atlantic: 65%). Three quarters (77%) of persons whose household income is between $25,000 and $30,000 think that the converter will be damaged by misfueling compared to persons whose family income is between $15,000 and $25,000 (66%) and 57% of persons whose family income is under $15,000. Drivers (70%) are more likely than non-drivers (49%) to think that misfueling will damage the converter. The same holds true for persons having heard of the converter (72%) as compared to persons not having heard of it (49%), and for owners of a car using unleaded gasoline (73%) as compared to owners using leaded gasoline (62%).

(See table on previous page)

vehicle runs less smoothly

Drivers are more likely (67%) than non-drivers (52%) to think that misfueling will cause the vehicle to run less smoothly. The same holds true for owners of a car using unleaded gasoline (70%) as compared to owners using leaded gasoline (60%).

reduces fuel economy

The incidence of saying that misfueling will reduce fuel economy is highest in the Atlantic (49%) and lowest in Quebec (35%) (Alberta: 47%, Man./Sask.: 44%, B.C.: 41%, Ontario: 41%). More drivers (41%) than non-drivers (28%) also share this opinion.

Q.9 You may be aware that many recent model vehicles have an anti-pollution device called a 'CATALYTIC CONVERTER' attached to the exhaust system. In general, have you heard, or <u>not</u> heard about this device before now?

Asked of 100% of the sample

Sample size	(2,000)
	%
Have heard	72
Have not heard	28
	100

3.2 Experience with the Catalytic Converter

Under this theme, we have grouped Q.9 to Q.14.

3.2.1 awareness of catalytic converter (Q.9)

Approximately seven out of ten (72%) respondents have heard about the catalytic converter. More males (85%) than females (60%) have heard about it. The incidence of being aware of the converter is highest in Alberta (84%) and in B.C. (81%) and lowest in Quebec (65%) as compared to elsewhere (Man./Sask.: 77%, Atlantic: 74%. Ontario: 70%). The incidence of being aware of the converter is also higher among anglophones (77%) than among francophones (66%).

More persons whose annual household income is over $25,000 are aware of the converter (82%) than persons whose annual household income is between $15,000 and $25,000 (74%) or under $15,000 (62%). The same holds true for persons with university (80%) and high school (70%) education, as compared to persons with primary education (60%).

Drivers are far more likely (80%) than non-drivers (43%) to have heard about the converter. The same holds true for persons thinking that an anti-pollution system reduces fuel economy (81%) as compared to persons thinking that it improves or does not affect it (68%), and for persons in favor of keeping government standards as they are (77%) as compared to those in favor of strengthening them (69%).

Q.10 On occasion, the catalytic converter can break down. Are you aware or not aware of this device breaking down in a vehicle owned by any member of your household?

Asked of 72% of the sample who said that they have heard about the catalytic converter before now.

Sample size	(1,440)
	%
Yes	19
No.	81
	100

3.2.2 converter breakdown (Q.10)

Of the 72% of the sample who said that they had heard about the catalytic converter, almost two out of ten (19%) were aware of this device breaking down in a vehicle owned by one member of their household. This finding applies across all sub-groups in the sample. Altogether, they represent 14% of the total sample reporting a defective unit, and amount to 277 people. Their geographic distribution indicates that Quebec appears to be under represented, while Ontario and the Atlantic are over represented:*

	Distribution of respondents reporting a defective converter		% distribution of survey respondents
	(#)	(%)	(%)
Atlantic	34	12	9
Quebec	56	20	27
Ontario	109	39	35
West	78	28	28
	277	99	99

* The reader should bear in mind that the margin of error for this sub-group consisting of 277 respondents is ± 6 in 19 cases out of 20.

Q.11 Was the device on that car replaced, or was it disconnected altogether?

Asked of 14% of the sample who said that they had heard about the catalytic converter and were aware of this device breaking down in a vehicle owned by a member of their household.

Sample size	(277)
	%
Replaced	41
Disconnected altogether	53
Neither.	1
Do not know	4
Not stated.	1
	100

3.2.3 converter replacement (Q.11)

Of the 14% of the sample who had heard of the converter and were also aware of this device breaking down in a vehicle owned by a member of their household, about four out of ten (41%) say that it was replaced, while slightly more than five out of ten (53%) say that it was disconnected altogether.

The reader should note that these 147 respondents who report disconnection represent 7% of the total sample. Their geographic distribution indicates that Ontario and Quebec appear to be under represented while the Atlantic and the West are over represented*:

	Distribution of respondents who report disconnecting defective conv.		% distribution of survey respondents
	(#)	(%)	(%)
Atlantic	26	18	9
Quebec	32	22	27
Ontario	37	25	35
West	52	35	28
	147	100	99

* The reader should bear in mind that the margin of error for this sub-group of 147 respondents is ± 7.5 in 19 cases out of 20.

Q.12 Was consideration given to simply disconnecting the catalytic converter instead of replacing it?

Asked of 6% of the sample who had heard about the catalytic converter breaking down in a vehicle owned by a member of their household and being replaced.

Sample size	(114)
	%
Yes	39
No.	60
Do not know.	1
Not stated	1
	101

3.2.4 considered disconnection? (Q.12)

In this question, the 6% of the sample who had heard about the catalytic converter breaking down and being replaced was asked if consideration was given to simply disconnecting the catalytic converter instead of replacing it. Almost four out of ten (39%) report that consideration was given to disconnecting it. This 39% segment represents 2% of the total sample and amounts to 44 respondents. Their geographic distribution is as follows:

	Distribution of respondents who report giving consideration to disconnecting a defective converter		% distribution of survey respondents
	(#)	(%)	(%)
Atlantic	4	9	9
Quebec	5	11	27
Ontario	24	55	35
West	11	25	28
	44	100	99

Q.13 Why was the catalytic converter NOT disconnected? (PROBE) Why else? (PROBE) Any other reasons?

Asked of 2% of the sample who had heard about the catalytic converter breaking down in a vehicle owned by a member of their household and being replaced, and who said that consideration was given to simply disconnecting the catalytic converter instead of replacing it.

Sample size	(44)
	%
Illegal to disconnect	36
All others	64*
Do not know.	7
	107**

* 'All others' represent 64% of the mentions given by 44 people, or, altogether, 28 mentions. These include: 'I found one at a good price so I had it replaced'; 'Said he was advised not to disconnect it because it would have an adverse effect on the vehicle'; 'Respect for the environment'; 'Influenced by garage station'; 'Pollution standards'; 'The catalytic converter tends to save you gas by using rechannelled gas fumes to run on'; 'It's too expensive so I replaced it'.

** Certain respondents provided more than one mention. Thus, response categories add up to more than 100%.

3.2.5 reasons for not disconnecting converter (Q.13)

This question was asked of the 44 respondents who had heard about the catalytic converter breaking down in a vehicle owned by a member of their household, and being replaced, and who also said that consideration was given to simply disconnecting it instead of replacing it. They were asked about the reasons for not disconnnecting it. 'Illegal to disconnect' is the reason that receives the most mentions (36%). No other single reason was mentioned a sufficient number of times to be statistically significant.

Q.14 Why was the catalytic converter disconnected? (PROBE) Why else? (PROBE) Any other reasons?

Asked of 7% of the sample who had heard about the catalytic converter breaking down in a vehicle owned by a member of their household and being disconnected altogether.

Sample size	(147)
	%
Better fuel economy/improve gas comsumption	24
Too costly to replace	18
To use leaded gas since less costly	10
Became plugged up	10
Better performance	9
Improve power/lose power when use it	8
Was not effective	7
Fire hazard/heat build up.	6
Unpleasant smell when hot.	4
Blocked the exhaust.	2
All others.	27*
Do not know	4
Not stated.	5
	134**

* 'All others' represent 27% of the mentions given by 147 people, or, altogether, 39 mentions. These include: 'One individual vehicle is not causing very much air pollution'; 'That's the way its done today. They put in a short pipe to replace it'; 'it was broken'; 'It kept breaking down': 'Because in the town I live in they couln't replace it. Never had the parts so they took it off'; 'It broke down and they took it out without my knowledge'; 'Parts came from the States, there was no way of getting them replaced'.

** Certain respondents provided more than one mention. Thus, response categories add up to more than 100%.

3.2.6 reasons for disconnecting converter (Q.14)

In this question, the 147 respondents who had heard about the catalytic converter breaking down in a household vehicle and being disconnected were asked about the reasons for disconnecting it. These include: 'better fuel economy/improve gas consumption' (24%), ' too costly to replace' (18%), 'to use leaded gas since less costly' (10%), 'became plugged up' (10%), 'better performance' (9%), 'to improve power/lose power when use it' (8%), 'was not effective' (7%), 'fire hazard/ heat build up' (6%), 'unpleasant smell when hot' (4%) and 'blocked the exhaust' (2%).

Q.17 Do you presently drive a motor vehicle at least once a week, or not?

Asked of all the sample

Sample size	(2,000)
	%
Yes	79
No.	21
	100

3.3 Drivers' Series

Under this theme, we have grouped Q.17 to Q.21.

3.3.1 incidence of driving (Q.17)

Approximately eight out of ten (79%) adult Canadians say they drive a motor vehicle at least once a week. More males (90%) than females (67%) are regular users of a motor vehicle.

The incidence of motor vehicle use increases among those with higher family incomes and among those with more education. Six out of ten persons whose annual family income is under $15,000 (60%) are regular users of a motor vehicle, compared to those with higher incomes (80% among those in the $15,000 to $25,000 category; 86% among those in the $25,000 to $30,000 category; and 93% among those earning more than $30,000). The greater incidence of motor vehicle use among persons with high school (77%) and university (86%) education compared to persons with primary education (65%) is likely a function of the higher income levels of persons with more education.

More persons in favor of keeping government standards as they are (85%) than persons in favor of strenghtening them (75%) are likely to be regular users of a motor vehicle. The same holds true for persons thinking that an anti-pollution system reduces fuel economy (86%) as compared to persons thinking it either improves or does not affect fuel economy (76%) and for persons having heard of the converter (87%) as compared to persons not having heard of it (56%).

Q.18 And do you regularly follow your vehicle manufacturer's maintenance schedule, or not?

Asked of 79% of the sample who said that they presently drive a motor vehicle at least once a week.

Sample size	(1,571)
	%
Yes	74
No.	26
	100

3.3.2 incidence of following vehicle's maintenance schedule (Q.18)

Among the 79% of the sample who presently drive a motor vehicle at least once a week, almost three quarters (74%) say that they regularly follow their vehicle manufacturer's maintenance schedule. Slightly more males (30%) than females (20%) say that they do not follow regularly their vehicle manufacturer's maintenance schedule.

Q.19 Which type of fuel is your car normally supposed to run on, according to the manufacturer's specifications? (READ LIST)

Asked of 79% of the sample who said that they presently drive a motor vehicle at least once a week

Sample	(1,571)
	%
Unleaded gasoline (regular or super) . .	70
Leaded gasoline (regular or super) . . .	26
Both leaded and unleaded gasoline . . .	3
Diesel, propane, natural gas & other . .	1
	100

3.3.3 prescribed fuel for vehicle (Q.19)

Seven out of ten drivers (70%) have a car which is normally supposed to run on unleaded gasoline. About one quarter (26%) have a car which can run on leaded gasoline, while 3% have a car using both leaded and unleaded gasoline, and 1% drive a car using diesel, propane, natural gas or another fuel.

Persons living in the eastern regions of Canada are more likely to have cars running on unleaded gasoline (Atlantic: 81%, Quebec: 77%, Ontario: 73%) compared to persons living in the west (Man./Sask.: 57%, Alberta: 67%, B.C.: 48%). The incidence of having a car running on leaded gasoline appears to be higher (40%) in Man./Sask. than the national average (26%). Overall, francophones appear to be slightly more likely (77%) than anglophones (66%) to have a car running on unleaded gasoline.

Q.20 At present, do you sometimes use leaded gasoline in your vehicle or not?

Asked of 55% of the sample who said that they presently drive at least once a week a motor vehicle normally supposed to run on unleaded gasoline.

Sample size	(1,094)
	%
Yes	13
No.	87
	100

Q.21 At present, do you sometimes use unleaded gasoline in your vehicle or not?

Asked of 21% of the sample who said that they presently drive at least once a week a motor vehicle which normally can run on leaded gasoline.

Sample size	(415)
	%
Yes	22
No.	76
Not stated	2
	100

3.3.4 incidence of misfueling (Q.20 and Q.21)

In question 20, the 55% of the sample who drive a motor vehicle normally supposed to run on unleaded gasoline were asked if they sometimes use leaded gasoline in their vehicle. Slightly more than one out of ten (13%) respondents report misfueling occasionally. This finding applies across all sub-groups in the sample.

In question 21, the 21% of the sample who drive a motor vehicle which can run on leaded gasoline were asked if they sometimes use unleaded gasoline in their vehicle. Approximately two out of ten (22%) respondents report occasional use of unleaded gasoline. The incidence of reporting occasional use of unleaded gasoline appears to be lower in Quebec (59%) as compared to the national average (76%).

4. APPENDICES

CARD 1

Appendix 4.1 Questionnaires

CATALYTIC CONVERTER SECTION

1. Now I would like to ask a few questions about POLLUTION. In your opinion, which of the following types of pollution is presently most serious in Canada? [READ LIST - ROTATE ORDER]

ROTATION

[ ] Air pollution ---------- 1
[ ] Water pollution ---------- 2
[ ] Soil pollution ---------- 3
7 8 9

45

2. Thinking about air pollution in particular. Do you think that motor vehicles cause _____ [FOLLOW ROTATION - READ TOP TO BOTTOM OR BOTTOM TO TOP] air pollution?

ROTATION

[ ] All ---------- 1
Most ---------- 2
Some ---------- 3
[ ] No ---------- 4
7 8 9

46

3. And which ONE of the following factors do you think contributes most to air pollution? [READ LIST - ROTATE ORDER] [RECORD ONE ANSWER ONLY]

ROTATION

[ ] Industrial waste from factories and coal-fired hydro plants ---------- 1
[ ] Pesticides and herbicides ---------- 2
[ ] Emissions from motor vehicles ---------- 3
[ ] Aerosol sprays ---------- 4
[ ] Individual fireplaces and woodburning stoves ---------- 5
7 8 9

47

4. Do you think that most air pollution in Canada is ... (READ LIST)

Blown from the United States ---------- 1
Produced in Canada ---------- 2
7 8 9

48

5. In regard to the standards for controlling air pollution, do you think the standards in the United States are tougher or weaker than in Canada?

Tougher ---------- 1
Weaker ---------- 2
DO NOT READ ← About the same ---------- 3
7 8 9

49

6. Should the Canadian government strengthen present anti-pollution standards concerning motor vehicles, or keep them as they are?

Strengthen standards ----- 1
Keep as they are ---------- 2
7 8 9

50

7. As you may know, recent model vehicles have an anti-pollution system. Please tell me whether you AGREE or DISAGREE with each of the following statements regardint the anti-pollution system. [READ LIST]

CD 1

	Agree	Disagree	
They really cut down on the amount of pollution caused by motor vehicles --	1	A	51
They tend to require a lot of maintenance and servicing ----------	2	B	52
The use of leaded gasoline can reduce their ability to decrease pollution ----	3	C	53
		7 8 9	

8. Do you think that the anti-pollution system on motor vehicles improves fuel economy, reduces fuel economy, or does it not affect fuel economy?

Improves ---------- 1
Reduces ---------- 2 54
Does not affect ---------- 3
7 8 9

9. You may be aware that many recent model vehicles have an anti-pollution device called a 'CATALYTIC CONVERTER' attached to the exhaust system. In general, have you heard, or not heard about this device before now?

Have heard ---------- 1 55
SKIP TO QUESTION 15 ← Have not heard ---------- 2
7 8 9

10. On occasion, the catalytic converter can break down. Are you aware or not aware of this device breaking down in a vehicle owned by any member of your household?

Yes, aware ---------- 1 56
SKIP TO QUESTION 15 ← No, not aware ---------- 2
7 8 9

11. Was the device on that car replaced, or was it disconnected altogether?

Replaced ---------- 1 57
SKIP TO QUESTION 14 ← Disconnected altogether ------ 2
7 8 9

12. Was consideration given to simply disconnecting the catalytic converter instead of replacing it?

Yes ---------- 1 58
SKIP TO QUESTION 15 ← No ---------- 2
7 8 9

13. Why was the catalytic converter NOT disconnected? [PROBE] Why else? [PROBE] Any other reasons?

59-60
61-62
63-64
65-66

SKIP TO QU. 15

ASK QU. 14 IF 'DISCONNECTED' IN QUESTION 11

CO 1

14. Why was the catalytic converter disconnected? [PROBE] Why else? [PROBE] Any other reasons?

67-69
69-70
71-72
73-74

ASK EVERYONE

15. Do you think that vehicle tune-ups can have an effect on air pollution or not?

Yes ---------- 1
No ---------- 2
7 8 9

75

16. Certain things could be done in order to reduce air pollution. Would you, personally, support or not support each of the following? [READ LIST]

	YES	NO	
Compulsory annual servicing of the anti-pollution system on vehicles ----	1	A	76
Prohibit the use of leaded gasoline in vehicles designed to use unleaded gasoline ----------	2	B	77
Prohibit disconnecting the vehicle's catalytic converter --------	3	C	78

7 8 9

17. Do you presently drive a motor vehicle at least once a week, or not?

Yes ---------- 1
No ---------- 2 → SKIP TO QUESTION 22
7 8 9

79

18. And do you regularly follow your vehicle manufacturer's maintenance schedule, or not?

Yes ---------- 1
No ---------- 2
7 8 9

80

19. Which type of fuel is your car normally supposed to run on, according to the manufacturer's specifications? [READ LIST]

CO 2

Unleaded gasoline (regular or super) --- 1
Leaded gasoline (regular or super) ----- 2 → SKIP TO QUESTION 21
Both leaded and unleaded gasoline ------- 3 → SKIP TO QUESTION 22
Diesel, propane, natural gas & other ---- 4 → SKIP TO QUESTION 22
7 8 9

6

20. At present, do you sometimes use leaded gasoline in your vehicle or not?

Yes ---------- 1
No ---------- 2 → SKIP TO QUESTION 22
7 8 9

7

CD 2

ASK QU. 21 IF 'LEADED' USED IN QU. 19

21. At present, do you sometimes use unleaded gasoline in your vehicle or not?

Yes ---------- 1 8

No ---------- 2

7 8 9

ASK EVERYONE

22. Do you think that the use of leaded gasoline in a vehicle designed to use unleaded gasoline will do any of the following? [READ LIST]

	YES	NO	
Damage the catalytic converter? -----	1	A	9
Reduce fuel economy? ----------	2	B	10
Cause the vehicle to run less smoothly? ----------	3	C	11
Increase air pollution? ----------	4	D	12

7 8 9

CARD 1

SECTION SUR LES CONVERTISSEURS CATALYTIQUES

1. J'aimerais maintenant vous posez quelques questions sur la POLLUTION. Laquelle des sortes de pollution suivantes est, selon vous la plus sérieuse au Canada actuellement? (LISEZ LA LISTE - ALTERNEZ L'ORDRE)

ALTERNEZ L'ORDRE		
[ ]	Pollution de l'air	1
[ ]	Pollution de l'eau	2
[ ]	Pollution du sol	3
		7 8 9

45

2. Veuillez penser à la pollution de l'air en particulier. Pensez-vous que les véhicules à moteur causent _____ (ALTERNEZ L'ORDRE - LISEZ DU HAUT AU BAS OU DU BAS AU HAUT) pollution de l'air?

ALTERNEZ L'ORDRE		
[ ]	Toute la	1
	La plus grande quantité de	2
	Un peu de	3
[ ]	Pas de	4
		7 8 9

46

3. Lequel des facteurs suivants contribuent le plus, selon vous, à la pollution de l'air? (LISEZ LA LISTE - ALTERNEZ L'ORDRE) (INDIQUEZ UNE SEULE REPONSE)

ALTERNEZ L'ORDRE		
[ ]	Déchets industriels des usines et des centrales d'énergie hydro - électrique chauffées au charbon	1
[ ]	Pesticides et herbicides	2
[ ]	Emissions des véhicules à moteur	3
[ ]	Atomiseurs aérosols	4
[ ]	Foyers individuels et poêles pour faire brûler le bois	5
		7 8 9

47

4. Pensez-vous que la plus grande quantité de la pollution de l'air au Canada est ... (LISEZ LA LISTE)

	Apportée par le vent venant des Etats-Unis	1
	Produite au Canada	2
		7 8 9

48

5. En ce qui concerne les normes pour contrôler la pollution de l'air, pensez-vous que les normes aux Etats-Unis sont plus rigoureuses ou moins rigoureuses qu'au Canada?

	Plus rigoureuses	1
	Moins rigoureuses	2
NE LISEZ PAS ←	Environ pareilles	3
		7 8 9

49

6. Le gouvernement canadien devrait-il renforcer les normes actuelles d'anti pollution quant aux véhicules à moteur, ou devrait-il les laisser telles quelles?

	Renforcer les normes	1
	Laisser telles quelles	2
		7 8 9

50

CARD 1

7. Comme vous le savez peut-être, les modèles récents de véhicules ont un système d'anti-pollution. Veuillez me dire si vous êtes D'ACCORD ou EN DESACCORD avec chacune des phrases suivantes en ce qui concerne le système d'anti-pollution. (LISEZ LA LISTE)

	D'ACCORD	EN DESACCORD	
Il réduit vraiment la quantité de pollution produit par les véhicules à moteur ------	1	A	51
Il a tendance à nécessiter beaucoup d'entretien et de service ----------	2	B	52
L'utilisation de l'essence avec plomb peut réduire sa capacité à diminuer la pollution ----------	3	C	53
	7 8 9		

8. Pensez-vous que le système d'anti-pollution sur les véhicules à moteur <u>améliore</u> l'économie du carburant, <u>réduit</u> l'économie du carburant, ou n'a pas d'effet sur l'économie du carburant?

Améliore ---------- 1
Réduit ---------- 2 54
N'a pas d'effet ---------- 3
7 8 9

9. Vous êtes peut-être au courant du fait que beaucoup des modèles récents de véhicules ont un appareil d'anti-pollution appelé un convertisseur catalytique qui est attaché au système d'échappement. En général, avez-vous entendu parler, ou n'avez-vous <u>pas</u> entendu parler de cet appareil avant aujourd'hui?

Entendu parler ---------- 1 55
N'a pas entendu parler ---------- 2 ← PASSEZ A LA QU. 15
7 8 9

10. À l'occasion, le convertisseur catalytique peut tomber en panne. Etes-vous au courant ou n'êtes-vous pas au courant d'un tel appareil qui a tombé en panne dans un véhicule que possède un membre de votre foyer?

Oui, est au courant ---------- 1 56
Non, n'est pas au courant ---------- 2 ← PASSEZ A LA QU. 15
7 8 9

11. L'appareil sur ce véhicule, a-t-il été remplacé, ou a-t-il été détaché complètement?

Remplacé ---------- 1 57
Détaché complètement ---------- 2 ← PASSEZ A LA QU. 14
7 8 9

12. A-t-on envisagé de détacher le convertisseur catalytique simplement, au lieu de le remplacer?

Oui ---------- 1 58
Non ---------- 2 ← PASSEZ A LA QU. 15
7 8 9

13. Pourquoi le convertisseur catalytique n'a-t-il <u>pas</u> été détaché? (SONDEZ) Pour quelles autres raisons? (SONDEZ) Y a-t-il d'autres raisons?

59-60
61-62
63-63
65-66

PASSEZ A LA QU. 15

CARD 1

POSEZ LA QU. 14 SI 'DETACHE' A LA QU. 11

14. Pourquoi le convertisseur catalytique a-t-il été détaché? (SONDEZ) Pour quelles autres raisons? (SONDEZ) Y a-t-il d'autres raisons?

67-68
69-70
71-72
73-74

POSEZ A TOUS LES REPONDANTS

15. Pensez-vous que les réglages de véhicule peuvent avoir un effet sur la pollution de l'air, ou non?

Oui ---------- 1 — 75
Non ---------- 2
7 8 9

16. Certaines choses pourraient être faites afin de réduire la pollution de l'air. Donneriez-vous votre appui ou non à chacun des énoncés suivants? (LISEZ LA LISTE)

	OUI	NON	
Révision annuelle obligatoire du système d'anti-pollution sur les véhicules ----------	1	A	76
Interdiction d'utiliser l'essence avec plomb dans les véhicules conçus pour utiliser l'essence sans plomb ----------	2	B	77
Interdiction de détacher le convertisseur catalytique du véhicule ----------	3	C	78
	7	8 9	

17. Conduisez-vous actuellement un véhicule à moteur au moins une fois par semaine, ou non?

Oui ---------- 1 — 79
Non ---------- 2 → PASSEZ A LA QU. 22
7 8 9

18. Suivez-vous régulièrement le programme d'entretien du fabricant de votre véhicule, ou non?

Oui ---------- 1 — 80
Non ---------- 2
7 8 9

CARD 2

19. Quelle sorte de carburant votre voiture devrait-elle utiliser habituellement, d'après les spécifications du fabricant?

L'essence sans plomb (ordinaire ou super) ---------- 1
L'essence avec plomb (ordinaire ou super) ---------- 2 → PASSEZ A LA QU. 21 — 6
L'essence avec plomb et l'essence sans plomb ---------- 3 → PASSEZ A LA QU. 22
Le diesel, le propane, le gaz naturel & autre ---------- 4
7 8 9

20. À present, utilisez-vous parfois l'essence avec plomb dans votre véhicule, ou non?

Oui ---------- 1 — 7
Non ---------- 2 → PASSEZ A LA QU. 22
7 8 9

CARD 2

POSEZ LA QU. 21 SI 'AVEC PLOMB' UTILISE A LA QU. 19

21. À présent, utilisez-vous parfois l'essence <u>sans</u> plomb dans votre véhicule, ou non?

Oui ---------- 1 8

Non ---------- 2

7 8 9

POSEZ A TOUS LES REPONDANTS

22. Pensez-vous que l'utilisation de l'essence <u>avec plomb</u> dans un véhicule conçu pour utiliser l'essence <u>sans</u> plomb produira l'un ou l'autre des effets suivants?

	OUI	NON	
Endommager le convertisseur catalytique? ----------	1	A	9
Réduire l'économie du carburant? ----	2	B	10
Causer un moins bon fonctionnement du véhicule? ---------	3	C	11
Augmenter la pollution de l'air? ----	4	D	12

7 8 9